THE ROLE OF THE OUTPUT IN LANGUAGE LEARNING

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ABSTRACT

This study uses linguistic output to identify cognitive processes of language learning, i.e. the internalization of specific language components and metalinguistic or metacognitive learning mechanisms. Given that these processes are present in discourse production, they indicate a significant role of speech production in foreign language learning. Furthermore, they serve as predictors of learning processes and can be used to model learning behavior. The data to support this claim were obtained in analyses of ten native speakers of Spanish learning Brazilian Portuguese in Brazil. We found that linking rules of phonology, which are different in Portuguese and Spanish, can be indicators of their language cognitive levels. Linking patterns indicate not only that the system is being learned, but also the transitions from one language proficiency level to another, such as from "advanced-low" to "advanced-mid," as well as when a Spanish speaker has probably reached a "superior level" in Brazilian Portuguese. Our study also indicates that some speakers seem to learn faster than others, given similar context for learning. This investigation suggests that that the reason behind the language gain difference in some learners is related to their attitude towards learning and their metalinguistic awareness, i.e. interest in teaching, self-corrected errors and sentence repair.

Key-words: *Portuguese, Spanish Speakers, Second Language Acquisition, SLA, Learning, Model, Phonology, Phonetics, Language Gain, Cognitive Processes, Phonological Processes; Self-monitoring; Predictors of Learning or Acquisition, Metalinguistic Awareness, Metacognitive awareness.*

INTRODUCTION

Despite some views that the output does not play a significant role in language learning, e.g. Krashen (1985), this article subscribes to opposite views, e.g. Swain (1995), that claim a significant role of the output in the cognitive learning processes. Speaking may not have a significant role in some learners because of their attitude toward language learning, but it does play a significant role in the learning process of many learners, especially successful learners.

Therefore, we defend the view that the output contains indicators of cognitive processes during speech, which were observed in some of the subjects in this study, but not all of them. Such

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cognitive processes can be noticed in some learners' hesitations, self-corrections, sentence repairs and other self-monitoring strategies revealed in the output. These self-monitoring strategies can indicate a different attitude in foreign language learning for some learners.

Using linguistic and extra-linguistic information found in our subject speech and responses to our questionnaires, this investigation makes significant contributions towards the creation of learning models. It provides linguistic information related to the cognitive processes of how Spanish speakers learn the Brazilian Portuguese (BP) *system*, especially the phonological and phonetic language components. In addition to the analysis of this specific language component it also studies how native speakers of BP judge the Spanish accent and language proficiency of Spanish speakers learning BP. The evaluation of non-native accent by natives is a strategy that we used in this study to verify our findings regarding the patterns that we found at the production level.

A prominent trend in foreign language studies is the creation of language learning or acquisition models. The terms "learn" and "acquire" as well as their derivative terms are used synonymously in this study. Learning models are vital to studies in foreign language because, when correct, they will contain learning predictors, they will consequently explain how language learning takes place, and they will inform us effectively on how to optimize learning situations, to improve our assessment tools and to advance foreign language curricula. This study is devoted to contributing to the creation of learning models for Spanish speakers learning BP.

Although there is considerable research devoted to the development of learning models – Allegro and Madureira (2008) and Flege and MacKay (2010) discuss models and hypotheses of learning models – research that contributes to the creation of learning models specifically for Spanish speakers who are learning Portuguese is limited. Models in general depend on the use of predictable phenomena. Our study attempts to identify predictors of language learning so that they can be incorporated in learning models.

BP and Latin American Spanish are typologically similar languages. Although there are differences between both languages in all of their language components, the phonological and phonetic components stand out, in relation to the other language components, such as lexicon, syntax, morphology, semantics and culture. In our analyses we observed all language

components in our subjects, but pronunciation is the area where speaking patterns differences have turned out to be the most obvious, as expected. Therefore, we focus primarily on language and speech patterns related to the pronunciation of our subjects.

An interesting feature about typologically close languages is that speakers of one of the languages seem to understand better the spoken language of the speakers of the other language, especially in an academic context. Danish speakers for instance are said to understand Swedish better than the Swedish understand Danish. In the case of BP and Spanish in general, Brazilians understand spoken Spanish speakers better. This is common knowledge deduced through experience. There is no empirical evidence or systematic research of it.

The explanation for this phenomenon in the case of Portuguese and Spanish may be mainly in the vowel systems of both languages. Vowels in BP, in addition to being greater in quantity– seven oral vowels vs. five in Spanish, plus five nasal vowels vs. none in Spanish –, change in quality much more than vowels in Spanish. In Spanish for example, vowels in word final position and in phonological phrase final position will strengthen in quality, whereas in Portuguese vowels in these contexts experience an array of changes to their quality, thus causing auditory difficulty for Spanish speakers. BP vowels, once changed, they will further change consonants, e.g. the palatalization of /t,d/ in words like "night" and "where"respectively, *noite → noiti → noitsi*, *or onde → ondi →ondzi* creating an even more surprising phonetic surface for the Spanish ear. Other examples could be added to show the dynamics of the Portuguese vocalic system at the phonetic level, which will surprise Spanish speakers learners of BP, but all which are learnable because of their being predictable and highly productive. Spanish vowels are relatively far more stable than in Portuguese. In other words, instead of simply learning by heart the inventory of vowel and consonants phonemes of BP, learners of BP must mentally process the dynamics of these moving targets: they must internalize the *language system* of BP.

Our analyses of moving targets revealed that two types of linking processes in Spanish, not present in the Portuguese system, surface in our subject speaking patterns when speaking in BP. These two notable linking processes are the ones ending with the *letters* –n and –s in the written language. We are referring to letters instead of phonemes, because it is a practical and helpful strategy for discussion, as the subjects may be pronouncing mistakenly these sounds because of the visual habit with letters. Therefore, if a Spanish speaker pronounces these consonants in word

final position (e.g. *no hablen, seis*), s/he will normally link these final consonants with the initial vowel of the following word, creating a resyllabification process. Hence,

In Spanish,

(No hablen aquí; *ing*. Don't talk here) *no#á.ble<u>n#a.k</u>í* becomes *no.á.ble.na.kí*, and

(Seis amigos; *ing*. Six friends) *se^{i}s#a.mi.gos* becomes *se^{i}.sa.mí.gos*

The equivalent contexts in BP produce the following phonological processes.

(Não falem aqui; *ing*. Don't talk here) *não#fá.lɛ,$^{\sim i,\sim}$#a.quí* becomes *não.fá.lɛ,$^{\sim i,\sim}$.a.quí*, and

(Seis amigos; *ing*. Six friends) *sé^{i}s#a.mí.gos* becomes *sé^{i}.za.mí.gus*

(# = word boundary; . = syllable boundary; ^{i} = glide in a falling diphthong; ~ = nasal pronunciation).

Notice in the resyllabification processes above that in BP there are no nasal consonants that surface in word final position despite of their being written. Furthermore, in BP the consonant "s" is pronounced as "z" when linking occurs, forming a new syllable with the following vowel.

We have focused on these predictably moving targets, that is to say pronunciation principles, because they reflect the dynamics of a language, and therefore the native speaker's intuition, which is *systematically* linked to unconscious mental processes. Furthermore, given our observations of these patterns, we realized that they can inform us about our subjects' proficiency levels.

The observed use of linking processes as a predictor of language proficiency progress discussed here is limited to our subjects. We recognize that is necessary to increase the number of subjects before making a generalization. Teaching linking processes in the classroom may or may not result in their learning (Pienemann 1989; Lightbown 1991, Eckman et al 1998), given that only longitudinal studies will confirm if they have been internalized or not for an undefined period of time. If in the future, it turns out that linking processes such as the ones in this study cannot be taught in the classroom, this may strengthen the power of these processes as indicators of whether or not the BP language system has been learned. Given the relatively early stage of our work, we want to first point out the importance of linking processes as a cognitive process – and

one which can potentially benchmark language gain – in the learning of BP by Spanish speakers. A stronger claim or generalization may be accomplished later as we continue our analyses.

Another accomplishment of this investigation is the confirmation of metacognitive or metalinguistic predictors of learning. Metalinguistic awareness has been documented as an essential factor in foreign language learning in many ways. According to Carvalho (2002), the fossilization of an interlanguage occurs when language students find themselves able to communicate effectively in their interlanguage and thus are discouraged to continue improving upon their linguistic and communicative skills. This fossilization can be avoided, confirms Carvalho, by encouraging early metalinguistic awareness by way of which students learn to consciously perceive and control crosslinguistic transfer—both positive and negative—between Spanish and Portuguese, thus visualizing and dominating diverging grammatical forms and concepts.

As it relates to the study at hand, this research on metalinguistic awareness can provide important clues as to the best environment in which to teach Portuguese to Spanish speakers. One of them is to make students teach key grammar topics discussed in a classroom or fossilized patterns, so that they will learn by teaching, under the supervision or moderation of their teacher in the classroom. Teaching a foreign language in appropriate contexts is perhaps one of the best ways to develop metalinguistic awareness and probably eliminate unwanted fossilized patterns.

EXPERIMENTAL PROTOCOL

Given our goals, we searched for *production patterns* in the speech of Spanish speaking learners of BP. Production patterns, if well understood, may yield predictive power for modeling foreign language learning. Since we are also interested in how native speakers perceive the spoken language of non-native speakers of BP, we asked native speakers to evaluate speech recordings of our Spanish speaking subjects.

Therefore, our study is a three-stage experiment. In the first stage, we asked 10 subjects, all native speakers of Spanish in Latin America, to record in conversation with one of us two 10-20 minutes dialogues, one in Portuguese and one in Spanish, totaling approximately 25-35 minutes of recordings for each subject. In the second stage, we sent selected passages of the recordings to native speakers of BP so that they could evaluate the recordings. In the third stage, we asked the

subjects to complete a written self-evaluation of their acquisition of BP, by responding to a questionnaire about how they think they learned BP, pointing out what they considered important in their learning experience and what they considered to have hindered their learning.

Therefore, firstly we analyzed common negative transfers of sound patterns in our subjects, especially two types of linking, i.e. phonological processes that are not part of the Portuguese language system, but of the Spanish system, the surfacing of [s] and [n] allophones which can be linked to the underlying /s/ and /N/ phonemes in Spanish, respectively. Secondly, we analyzed syntactic and lexicon patterns.

A quick note about our methodology: the second stage of our analysis—an auditory analysis of how BP speakers perceive the speech of Spanish speakers of BP—was conceived and carried out in order to probe deeper into the phonological, phonetic, syntactic and lexical features in our subjects' speech. As the principal linguistic goal of our subjects was effective communication in Portuguese, we wanted to evaluate their speech performance from the perspective of a typical Portuguese native speaker. Basically, the idea of the auditory analysis is to understand how BP speakers perceive a foreign accent as well as our subjects' language skills. Which factors indicate to a BP speaker the mastery of their language and pronunciation by a native Spanish speaker? Is it the appropriate use of vocabulary, syntax, pronunciation, or are all of them judged similarly and overall?

These subjects are from Mexico City (one), from Bogotá, Colombia (one), from Ibagué, Colombia (one), from Guayaquil, Ecuador (one), from Asunción, Paraguay (one), from Guatemala City (one), from Sogamoso, Colombia (one), from California and Arkansas, USA (one) and from Arica, Chile (two). Our study of the recordings revealed that nine of our ten subjects speak a Spanish that is characterized by a relative *consonantismo fuerte*, and that all ten subjects could be placed in advanced-low and advance-mid levels of proficiency, relative to the scale of the American Council on the Teaching of Foreign Languages (ACTFL).

By *consonantismo fuerte* (ing. "strong pronunciation of consonants"), we mean a speech in which consonants in Spanish are relatively well articulated, without dramatic reduction or

deletion. Of course, in Spanish, consonants are not as well articulated and "strong" as in English or BP, but in many of the major varieties of Spanish, e.g. Mexico City, Guadalajara, Bogota, Quayaquil, Lima, they are articulated in speaking with more stability than in areas like Rio de la Plata, Caribbean regions, and others. For instance, in the varieties of Spanish with *consonantismo fuerte* the consonants in *abogado*, as well as consonants in coda position such as *este, saber, puerta, nación* surface rather relatively clearly. These are general remarks, because other factors such as register, level of education, social class and others will also affect Spanish pronunciation. On the other hand, one of the ten subjects speaks with some traits of *consonantismo débil* (ing. "weak or soft or deleted pronunciation of consonants"), but without extreme consonant changes or reductions, such as complete deletion of voiced stops, rhotacism (when "l" becomes "r") or lambdacism (when "r" becomes "l") and many others. Speakers in general with *consonantismo débil* will produce extreme consonant reductions, consonant deletion, rhotacism, lambdacism, aspiration of –s, velarization of –n, and other changes in consonants.

It is important to understand these features of Spanish in order to understand the speaking patterns of our subjects speaking BP. In urban areas, in formally educated social classes, BP can be said to have *consonantismo fuerte*, especially in relation to Spanish. Our subjects learned BP in urban areas, in a university context, in the cities of Florianópolis, the capital of the state of Santa Catarina, and São Paulo, the capital of the state of São Paulo, with the exception of one subject who learned BP with Brazilian and American instructors at a university in the United States. .

We listened to our subjects' recordings looking for patterns of system errors. Systematic errors is what will indicate if the BP system has or not been cognitively internalized. We also compiled their questionnaire answers and tried to link their responses to what they actually produced in the recordings.

Their responses and recordings were at first analyzed in terms of all language components, from phonetics and phonology to discourse, in search of speaking patterns or behaviors, specifically psycholinguistic, situational and linguistic patterns. Then, having found that linking patterns

were strikingly helpful to understand speaking skills, we focused on this linguistic component in our analysis.

After the speech production analysis, we selected 16 passages from the recordings, in four speakers, two males and two females. These passages where chosen according to errors in three language specific areas: phonology (linking processes and mispronunciation of BP phonemes), lexicon and syntax. Each passage of 4-7 seconds duration has errors predominantly in linking, vocabulary choice or syntax. Then, we asked BP speakers to evaluate the 16 passages, by giving them scores of: 0. .5, 1, 1.5, 2.0. 2.5, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7.0. 7.5, 8.

The 16 recording passages evaluated by BP speakers were selected as follows.

Pronunciation: recordings 5, 6, 14, 15, 16
Vocabulary: recordings 4, 8, 9, 10. 12,
Syntax: recordings 1, 2, 3, 11, 13,

Recording number 7 turned out to be more complex to categorize. It is a common type of error among Spanish speakers of BP ("...queria que eu falara..."). This type of negative transfer is an error that cannot be simply classified as an error in form, because "falara" in Portuguese is not a variation of Past Subjunctive as "hablara" is in Spanish. In Portuguese it is the Indicative Mode equivalent of English and Spanish Pluperfect verb form.

Therefore, the Spanish speakers in the recording passages were from

Colombia-1, male: recordings 1, 5, 10
Colombia-2, male: recordings 8, 14
Guatemala, female: recordings 2, 3, 6, 9, 12, 15
México, female: recordings 4, 7, 11, 13, 16

RESULTS AND DISCUSSION

Table 1 shows four subjects selected in the recording passages. The grid is the same one that we used in our listening analyses of the recordings. The list on the leftmost column is a result of the linguistic patterns that were found in the recordings, which should not surprise, given that they are common areas of difficulty for Spanish speakers learners of Portuguese. Two language-specific areas are shown, Pronunciation and Syntax. Lexicon is not in this grid, because lexicon is acquired in series at any moment in adult process of language learning, which makes it a

language component relatively more difficult treat as predictor of learning, that is to say difficult to incorporate in models of foreign language acquisition. “Forms” indicates the use of the correct verb forms in BP, for the Subjunctive mode and the correct form of the Preterit in the Indicative mode, two common difficulties among Spanish speakers learners of BP.

Despite their advanced level of language proficiency, linking seems to be very difficult to acquire, leading us to believe that only Superior speakers will link correctly and consistently when speaking BP. This may exclude learners who have acquired these linking processes as well as other features through languages, e.g. English, French, where these processes are part of the system of the other languages that they may know. Among our subjects, some processed linking just as with their native Spanish, others linked but inconsistently, some better than others, but none with consistency. The grid reflects their patterns in the recordings. The grid in Figure 1 is also helpful to offer a fairly good idea of who has a more advanced command of Portuguese among the subjects, by the number of checks on the “A” column, which is subject Colombia-2. Although we could not discern the necessary syntactic features in Colombia-2’s speech to be able to populate this section of our grid with data, we would not be surprised if this subject had also acquired these features.

	Guatemala			Mexico			Colombia-1			Colombia-2		
Phonological processes	A	N	~A	A	N	~A	A	N	~A	A	N	~A
Linking –n#v-, -s#v-		X			X			X				X ?
Vowel raising	X			X			X			X		
Final –l (vocalization)	X			X			X			X		
Palatal t/d followed by [i]	X			X			X			X		
Vs → V^{i}s (três → treis)	X				X		X			X		
Vowels: open vs closed	X			X				X		X		
Diphthongization	X			X				X		X		
Sounds												
Phoneme z		X			X			X			X	
Final –m deletion	X				X		X			X		
Final nasal V		X		X				X		X		
Phoneme v		X		X			X			X		
Phonemes š and ž		X			X		X			X		
Syntax												
Present Perfect c. Preterit		X		-	-	-	-	-	-	-	-	-
Future Subjunctive	X				X		-	-	-	-	-	-
Control use of personal a												
Plurals in –l	X			X ?			-	-	-	-	-	-
"Forms"							-	-	-	-	-	-
Preterit (-ei, -ou)	X			X			X			X		

Table 1. Grid used to analyze the speaking features of our subjects. Here we show only four of the subjects. Passages from these subject recordings were used to create the recording sent to native speakers of BP for evaluation.
Abbreviations used:
A = Aquired
N = Has noticed
~A = Not acquired

Although this grid deals with specific features, contrary to ACTFL overall guidelines, it helped to establish the level of language proficiency and to have a useful view of the learner's

characteristics. Therefore, our assessment of our subjects' language proficiency incorporated three types of strategies, an adapted used of the ACTFL-OPI interview, the listening evaluation performed by BP speakers, and our listening of the recordings using the grid in Figure 1.

Given that linking turned out to be the most regular speaking pattern as observed in our subjects' speech, we focused on two linking processes observed among them: the resyllabification of words ending in *letters* –n and –s followed by a word that started with a vowel.

Below, we present actual samples of linking processes taken from our subject recordings made in BP and also in Spanish, for comparison. The abbreviations mean, V = vocoid; # = word boundary; . = syllable boundary; → = becomes

BP linking process, as observed in the Spanish speakers subjects:

Resyllabification: /V/+/s/ # /V/ → [V].[z] [V]
meus irmãos: meu s # ir.mãos → meu . z ir.mãos

Spanish linking processes in the Spanish of our subjects:

Resyllabification: /V/+/s/ # /V/ → [V].[s] [V]
mis hermanos: m i s # her.ma.nos → mi . s er.ma.nos

Resyllabification: /V/+/n/ # /V/ → [V].[n] [V]
viven aquí: vi.v e n # a.quí → vi.ve . n a.quí

As explained earlier in this study, we first grouped the passages according the language component Pronunciation (Phonetics and Phonology), Vocabulary, Syntax and Other, as seen in Figure 3. The passages selected were randomized and put in one single recording with pauses between them. Finally, they were sent to 14 native speakers of BP in Brazil and in the US, so that they would give a note from 0 to 8, in their evaluation of the language level of these random passages. Our statistical analysis showed that the distance from the mean in two of our BP subjects who listened to the tapes were too far from the rest of the group, and we decided not to include these two in our analysis. Figure 2 shows this difference.

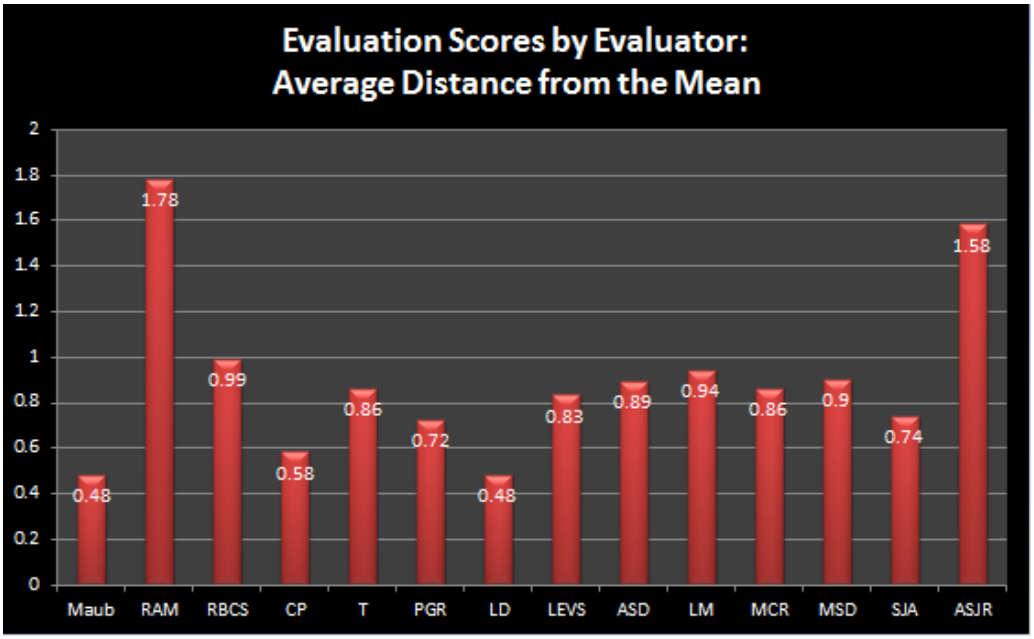

Figure 1. The BP speakers' evaluation of the recording passages. Two of them, the second and the last from the left had a distance from the mean that indicate that they don't belong to this population, and therefore their evaluation did not play an important role in our analyses.

The graphic in Figure 3 contains all fourteen subjects and the one in Figure 4 contain only the 12 evaluators who showed to have more reliable evaluation, given their distance from the mean. The graphic in Figure 4 indicate that pronunciation and syntax will lower the evaluation score more than lexicon. One way of interpreting these results is to say that native speakers noticed the foreign accent more, and perhaps experienced more difficulty with comprehension, when errors were made in the areas of pronunciation and syntax as opposed to vocabulary choice.

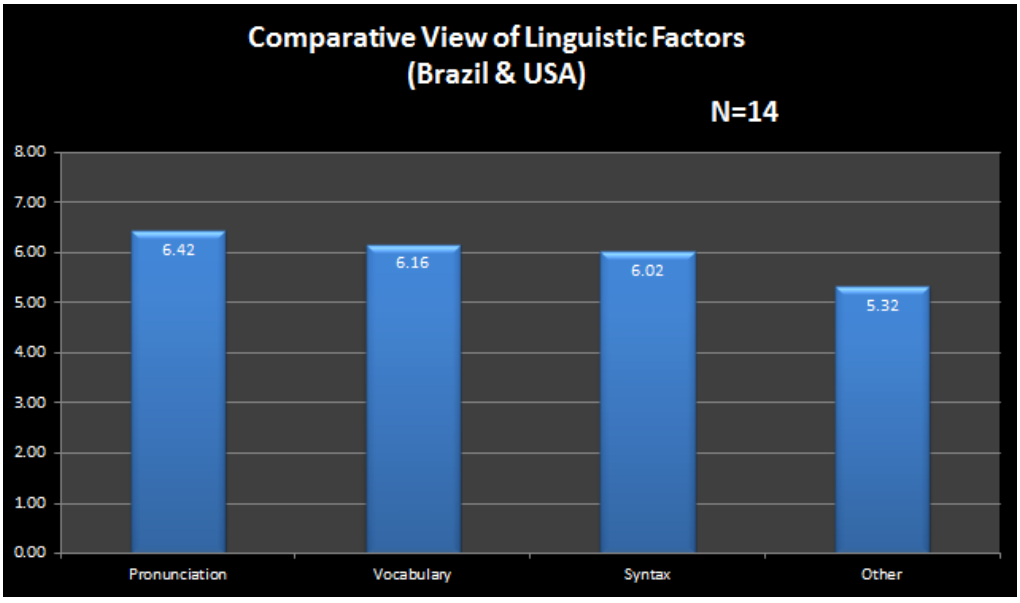

Figure 2. The separation of the responses in the evaluation of the recording passages by Spanish speaker learners of BP made by BP speakers. All 14 BP speakers are included in this graphic.

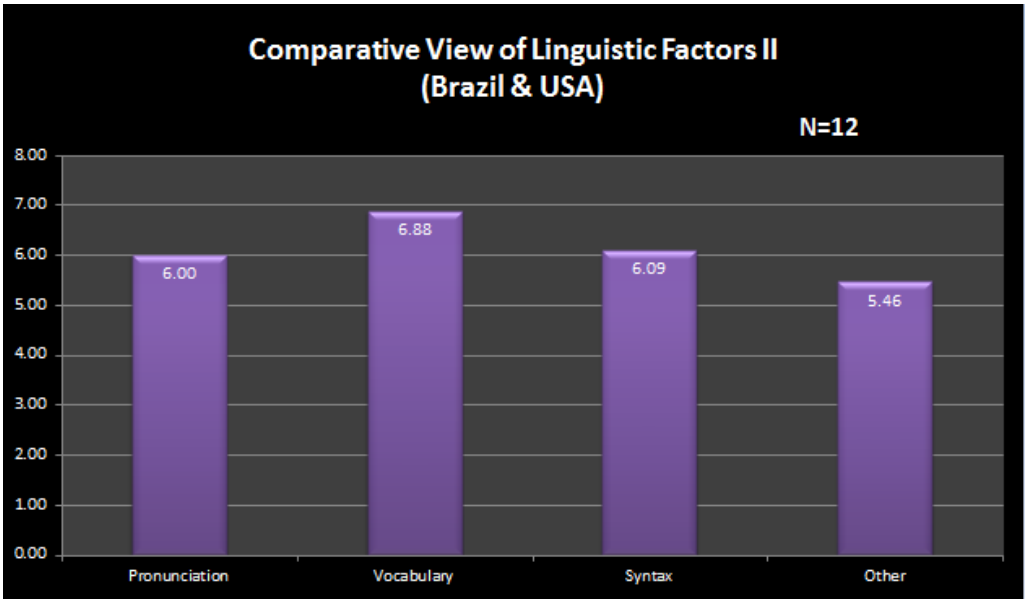

Figure 3. The same data as in Figure 3, after eliminating the two evaluators who showed dramatic divergences in their standard deviations from the mean.

Our data has also provided some additional results to take into consideration. In Figure 5, we show the evaluation of Brazilians in Brazil and Brazilians in the US. Six evaluators lived in Brazil and six in the US. The Brazilian evaluators in Brazil consistently graded higher than the ones in the US, in terms of pronunciation, vocabulary and syntax. We are not sure yet how this information can be applied directly to our research goals, but it should be taken into account when foreign language assessment takes place in both countries, as well as in research and teaching in foreign languages in general.

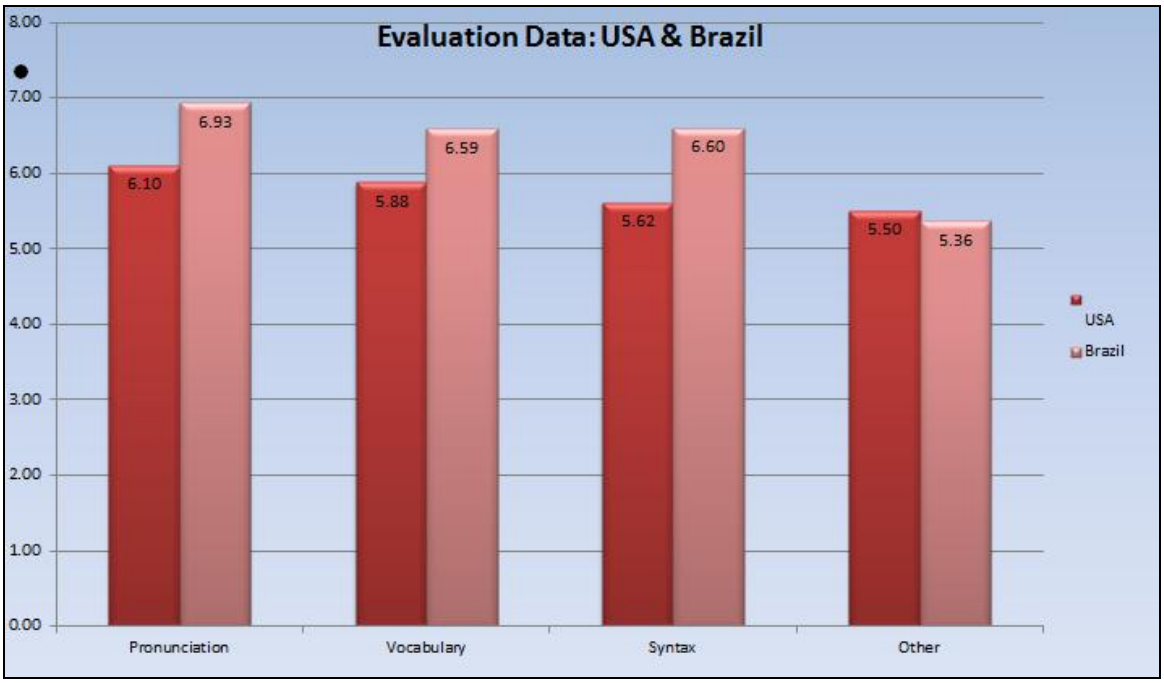

Figure 4. Brazilian evaluators in Brazil gave higher evaluations than the Brazilian evaluators in the US.

Finally, Figure 6 is also a result of the evaluations by Brazilian speakers of BP in both Brazil and US. These evaluations strengthen the results displayed in the grid that the authors of this study produced during their analysis of the recordings of four chosen subjects, e.g. the more advanced level of the subject "Colombia-2" compared to the other subjects. Colombia-2 had no comparable samples in syntax, and had s/he provided such samples, we can expect the gap to increase in his/her favor.

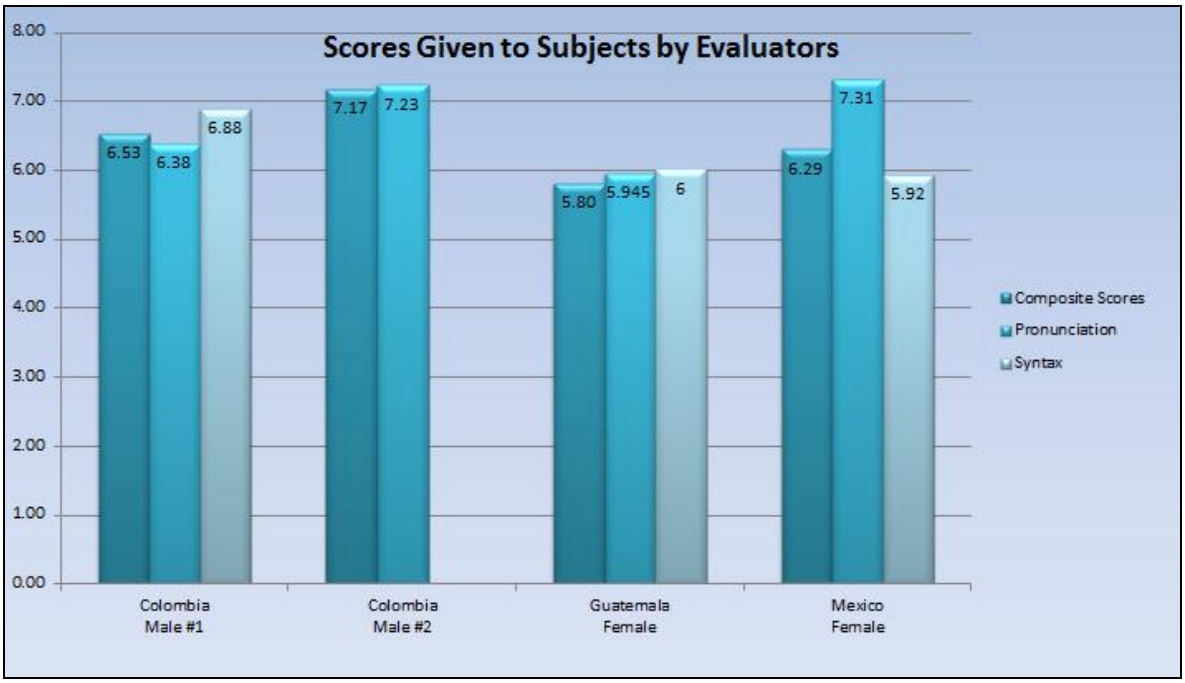

Figure 5. The evaluation of the four Spanish speakers in our study, done by native speakers of BP.

Our analysis of systematic and non-systematic errors is not new in studies of the nature of language learners. Corder (1981) has already established the importance of systematic processes (errors) contrasted with non-systematic processes (mistakes). Our study also realizes the importance of systematic processes, but in contrast with less "moving" targets such as the inventory of vowels and consonants.

As for the difference in language gain among some of our subjects, we are still investigating the details of these differences. However, our preliminary analyses show that attitude towards language learning plays a strong role in language learning. For instance, a couple among the subjects in this study seem to confirm these observations. They are adults, about the same age in their late thirties, they are married and have similar language learning opportunities. Both arrived in Brazil about one year and eight months before the first interview was conducted, and both enrolled in the same Portuguese language course, oriented towards the teaching of BP for speakers of different languages, which they attended for approximately one year. Thus, we can infer that the ''learned system'' of the couple – the relevant rules related to the learning of a second language – is constant. Any difference in their language acquisition would be a result of an ''acquired system," or language acquired through informal language interactions, and different attitudes toward language learning. However, we need to pursue further in the analysis

of this particular couple, in a longitudinal study. While one of them shows concern with performance in the target language through sometimes brief, sometimes almost non-noticeable hesitations followed by self-corrections, in the recordings, the other let the speech flow more easily, with unnoticed mistakes. In sum, their different proficiency level seems to have a response in their attitude toward learning Brazilian Portuguese.

CONCLUSION

This study found, among other linguistic patterns in Spanish speakers learners of BP, phonological linking patterns that can be potential predictors of language learning and also indicative of language proficiency levels. Furthermore, we have also observed self-corrected errors in one of our subjects that indicate a significant role of cognitive awareness in the foreign language learning process, but need further studies to be confirmed, especially through longitudinal analyses. However, both findings can play a significant role in the development of language learning models.

In our analyses of our ten subjects, we were able to isolate linking cognitive processes, which can be used to indicate not only that the system is being learned, but also the transitions from one language proficiency level to another.

Given the contrast in the dramatic difference of vowel quality in phonological processes between both languages, we could have focused on changes in vowel quality in this study. However, our corpus didn't have patterns in the production of vowels as evident as the patterns of the linking processes we observed. In future studies, it would be helpful to focus on vowel changes in both systems, which may prove to be powerful predictors of language learning. Likewise, we did not focus on vocabulary acquisition as much as in linking processes, because vocabulary is acquired in series instead of being acquired in parallel, which would demand another full research program to make its result available to learning models.

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